

Notice of Allowability

Application No.

09/950,081

Examiner

Mark Ruthkosky

Applicant(s)

OKUMURA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/22/2006.
2. ☒ The allowed claim(s) is/are 18 and 24-34.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

MARK RUTHKOSKY
PRIMARY EXAMINER
Mark Ruthkosky 8.4.06

DETAILED ACTION

Response to Amendment

The amendment filed 5/22/2006 amends claim 18 and adds claims 24-34. Applicant has canceled the remaining claims.

Claim Rejections - 35 USC § 102/103

The rejection of claims 1-8, 10-18 and 21-23 under 35 U.S.C. 102(b) as being anticipated or, in the alternative, under 35 U.S.C. 103(a) as obvious over Butler (US 6,251,308) has been overcome by applicant's amendment.

The rejection of claims 1-7, 10-11, 13, 16-18 and 21-23 under 35 U.S.C. 102(b) as being anticipated or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wilson (WO 00/25372) has been overcome by applicant's amendment.

Claim Rejections - 35 USC § 103

The rejection of claims 1-8, 10-18 and 21-23 under 35 U.S.C. 103(a) as being unpatentable over Butler (US 6,251,308, as applied above, and further in view of Saito et al (US 6,436,567) has been overcome by applicant's amendment.

Allowable Subject Matter

Claims 18 and 24-34 allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to a process for producing a separator for a solid polymer- type fuel cell, which comprises kneading a resin composition with a pressure kneader under a pressure of 9.8×10^3 to 9.8×10^5 Pa higher than atmospheric pressure and molding the kneaded composition, wherein the resin composition comprises an electroconductive agent and a radical-polymerizable thermosetting resin system comprising a vinyl ester series resin, wherein the weight ratio of the electroconductive agent and a radical-polymerizable thermosetting resin system is 65/35 to 92/8. The prior art does not teach a method wherein an electroconductive agent and a radical-polymerizable vinyl ester series thermosetting resin system are kneaded with a pressure kneader under a pressure of 9.8×10^3 to 9.8×10^5 Pa higher than atmospheric pressure and molded. Applicant's results provided in the declarations are noted and given weight with regard to the allowability of the claims. The method appears to give a homogeneous mixture of the materials when molded as compared with the prior art.

The most pertinent prior art has been cited. Butler (US 6,251,308) teaches a resin composition for a homogeneous separator of a solid polymer fuel cell comprising an electroconductive agent and a radical-polymerizable thermosetting resin system (see column 1, lines 52-end, and column 4.) The electroconductive agent includes carbonaceous materials such as graphite in various concentrations including a range from 65/35 to 92/8 (col. 4, lines 37-65.) The radical-polymerizable thermosetting resin system includes a vinyl-ester series resin in which methacrylate is added to a bisphenol A resin (col. 4, lines 15-40.) A radical-polymerizable dilutant of styrene is added in a specific range (col. 4, lines 25-40.) The double bond equivalent and glass transition temperature of the composition are inherent features of the compound. Low-profile agents are noted throughout the reference (including the various compounds in columns 5

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and 6.) The agents are added in the range of 0.1 to 30 parts (wt.) relative to the radical-polymerizable thermosetting resin system. An example includes polyvinyl acetate (col. 6, lines 37-end.) Molding and mixing the materials, including pressure kneading and molding, are noted in col. 6, line 60 to col. 7. It is noted that mixing inherently involves applying pressure to the material and that kneading and mixing are equivalent processes. The materials are formed into a flow field plate, which is used in a solid polymer fuel cell. The reference does not teach a pressure kneader or that the resin is kneaded with a pressure kneader under a pressure of 9.8×10^3 to 9.8×10^5 Pa higher than atmospheric pressure.

Wilson (WO 00/25372) teaches a separator plate of a solid polymer fuel cell comprising a resin composition of an electroconductive agent and a radical-polymerizable thermosetting resin system (see claims 1-14 and page 4.) The electroconductive agent includes carbonaceous materials such as graphite in various concentrations including a range from 65/35 to 92/8 (p. 6, lines 10-15, Table III.) The radical-polymerizable thermosetting resin system includes a vinyl-ester series resins (p. 4, lines 20-end.) Methacrylated epoxy polymers are noted. The double bond equivalent and glass transition temperature of the composition are inherent features of the compound. Dilutant materials are taught in the paragraph bridging pages 6-7. Fiber resins of similar nature including polyester or polyacrylonitrile may be added. The addition of a polyester may also constitute a low-profile agent. Molding and mixing the materials, including pressure kneading and molding, are noted on page 8. It is noted that mixing inherently involves applying pressure to the material and that kneading and mixing are equivalent processes. The materials are formed into a flow field plate, which is used in a solid polymer fuel cell. The reference does

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not teach that the resin is kneaded with a pressure kneader under a pressure of 9.8×10^3 to 9.8×10^5 Pa higher than atmospheric pressure.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky

Primary Patent Examiner

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Mark Ruthkosky
8/4/06